

---

# **VA Enterprise Design Patterns: VA SOA Design Patterns for VistA Evolution**

**Office of Technology Strategies (TS)**

**Architecture, Strategy, and Design (ASD)**

**Office of Information and Technology (OIT)**

**Version 2.0**

**Date Issued: 15 April 2014**

---



THIS PAGE INTENTIONALLY LEFT BLANK FOR PRINTING PURPOSES

## REVISION HISTORY

Version Number	Date	Organization	Notes
1.0	1/24/14	ASD TS	Initial Release including first set of enterprise SOA design patterns for COTS and non-COTS applications
2.0	4/15/14	ASD TS	Updated document includes additional implementation guidance for VistA Evolution web technologies data sharing and new attachments that addressed feedback from stakeholders including PD, IPO, IAM, and ASD

## REVISION HISTORY APPROVALS

Version Number	Date	Approver	Role
2.0	4/15/14	Joseph Brooks	Enterprise SOA design patterns Government lead

## TABLE OF CONTENTS

1	Introduction .....	1
1.1	Purpose .....	1
1.2	Document Scope .....	1
1.3	Document Organization .....	2
1.4	Document Development and Maintenance .....	3

# **1 INTRODUCTION**

This document establishes the incremental foundation for enterprise design patterns applied throughout the VA. Enterprise design patterns will help programs develop service-oriented solutions that comply with the OneVA Enterprise Technical Architecture (ETA) and leverage approved tools and technologies in accordance with the Technical Reference Model (TRM). Enterprise design patterns will provide a bridge between specific design solutions and more comprehensive enterprise architecture goals. Additionally, they will be included by reference in Performance Work Statements (PWS) to facilitate the acquisition of products and services that align to the VA's SOA vision.

## **1.1 Purpose**

The purpose of this document is to describe the initial set of enterprise SOA design patterns intended for use throughout for the VA. This document includes a set of enterprise SOA design patterns that pertain to the evolution of the Veterans Information Systems and Technology Architecture (VistA) to an integrated SOA environment (aka VistA Evolution). This evolution requires enterprise architecture guidance to facilitate program-level decisions about design approaches that will support the development of VistA applications. Future versions will provide design patterns that programs will apply for all applications being integrated into the to-be VA SOA environment.

Enterprise SOA design patterns will provide the linkage between enterprise architecture guidance and program-level system development activities. They will be leveraged by the VA to inform and constrain solution architecture for individual programs. Solution architecture represents detailed product configurations and interface specifications, and they guide full-lifecycle system design, integration, testing, and deployment activities. Design patterns will help programs address common challenges associated with implementing solution architecture, and they will help programs align to the OneVA Enterprise Technical Architecture (ETA).

## **1.2 Document Scope**

Enterprise SOA design patterns contained in this document are intended for all new healthcare software products that securely access VistA data and either use software developed within the VA or software acquired from external sources. These products may include either newly developed "green field" applications, or modified systems already in production. As such, this document focuses on VistA Evolution COTS applications as well as VA developed software, which is classified as "non-COTS" applications. Future versions will include SOA design patterns that extend beyond VistA Evolution and will apply to the enterprise SOA of the VA.

Depending on a program's business needs, enterprise SOA design patterns will provide technical guidance for either building a new application or modifying existing production

systems. Enterprise SOA design patterns will cover different situations that are driven by requirements and available resources, as shown in Figure 1:

	Building a New “Green Field” Application	Modifying an Existing Production System
Acquire COTS (including Open Source) Product	X	X
Develop New Product (Non-COTS)	X	X

Figure 1. Enterprise SOA Design Patterns Scope

The figure above indicates that enterprise SOA design patterns will cover four different project situations as follows:

1. Build a new “green field” application by acquiring and deploying a COTS product (including open-source software)
2. Build a new “green field” application by developing software products within the VA (non-COTS)
3. Modify or upgrade an existing production system by acquiring and deploying a COTS product (including open-source software)
4. Modify or upgrade an existing production system by developing software products within the VA (non-COTS)

Enterprise SOA design patterns will guide programs in building applications that are either developed within the VA or use COTS products that share data with other VA applications and use VA SOA infrastructure services as appropriate.

### 1.3 Document Organization

This document currently contains three attachments. Attachment A focuses on design patterns for all COTS applications being acquired and integrated into VistA Evolution (including open source software acquisitions). Attachment B focuses on non-COTS applications that are developed by the VA and integrated into VistA Evolution.

Programs will use either of these attachments to guide the development of new “green field” applications or to modify existing functionality depending on business needs.

Attachment C provides additional implementation guidance to expand upon the high-level VistA Evolution design patterns provided in Attachments A and B. This document elaborates on how new healthcare applications will use enterprise IT infrastructure services provided by recent VA technology investments to share data efficiently and securely across the enterprise. The VA’s IT infrastructure is designed to support an environment where all future VA applications and software will be responsive in nature. More specifically, the actual design patterns will universally apply to all types of web technologies – both mobile and non-mobile.

#### **1.4 Document Development and Maintenance**

Developed collaboratively with stakeholders from OIT Product Development (PD), Office of Information Security (OIS), Architecture, Strategy and Design (ASD), and Service Delivery and Engineering (SDE), design patterns will guide and synchronize the development of system designs to drive the realization of a common vision for the enterprise. This vision, which is documented in the OneVA Enterprise Technical Architecture (ETA), leverages best-of-breed technologies to maximize the effectiveness, efficiency and security of the VA’s IT assists. This creates a feedback loop which cultivates participation and collaboration between both enterprise architecture and solution architecture domains.

This document will be reviewed and updated as needed to account for additional feedback from stakeholders as well as lessons learned from enterprise design pattern implementation. Updates will be coordinated with the Government Lead for this document, who will facilitate stakeholder coordination and subsequent re-approval. Major updates of this document will require formal re-approval per the approval chain listed in the “Approval Coordination” section.

**ATTACHMENT A – SOA DESIGN PATTERNS FOR VISTA EVOLUTION: COTS APPLICATIONS**

See attachments in navigation to open

**ATTACHMENT B – SOA DESIGN PATTERNS FOR VISTA EVOLUTION: NON-COTS APPLICATIONS**

See attachments in navigation to open

**ATTACHMENT C – SOA DESIGN PATTERNS FOR VISTA EVOLUTION: WEB  
TECHNOLOGIES DATA SHARING FOR VISTA EVOLUTION**

See attachments in navigation to open